







## **Royal Docks revival** Replacing London City Airport



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## Foreword

Air travel was once the stuff of fantasy, now it is taken for granted, at least by a relatively wealthy global minority. An estimated 500,000 people now float aloft at any one point in time, travelling from A to B, like a large town hovering above the Earth. But the world is at a crossroads. We are on the cusp of losing the climate in which civilisation evolved and emissions from aviation are among the most damaging. At the same time, cities are acutely vulnerable to global warming and the risks of growing inequality. They need to become more economically resilient to the external shocks of volatile food and fuel prices and supply chains.

When London City Airport opened in the Royal Docks 25 years ago, it would have been considered an asset, bringing some economic benefits to east London, although fewer than promised. Today it has become a liability, an obstacle to progress and economic opportunity in the area rather than a catalyst. We have the chance right now to re-imagine and reform the aviation industry, and make a bold move to free the London City Airport site for new opportunities.

This research carried out by the New Economics Foundation (NEF) reveals fresh thinking and exciting, previously overlooked possibilities for the Royal Docks as part of a new wave of investment in the area. The report tells a global as well as a local story. It demonstrates the scale and boldness of the re-imagining needed everywhere to meet modern challenges. We know we have to transform cities around the world if they are to be sustainable, stable and healthy. Part of that transformation has to take place in local neighbourhoods, drawing on the imagination and energy of local people who have ambitions for their communities. Projects like this, demonstrating what a neighbourhood vision can be, show it can be done and are a spur to action. Within the aviation trade, passengers are often referred to as 'self-loading cargo'. This report has a better vision of the possibilities for local people and businesses and for London. But it is also about a chance to put the Royal Docks on the world map as a place where a sustainable neighbourhood is being realised.

## **Andrew Simms**

NEF Fellow, author of *The new economics* and *Cancel the apocalypse: The new path to prosperity.* 

## Summary

London City Airport occupies a large and valuable strip of land at the heart of London. Does it make sense to locate an airport in such precious space? What if we reclaimed this historic site and built a new neighbourhood, incorporating the best thinking about sustainable urban design?

The Royal Docks is an important area of the UK capital. London City Airport occupies land that could be redeveloped as a sustainable and socially just neighbourhood, complementing current regeneration plans for east London and inspiring transformation across the capital and beyond.

With the real and pressing need to transform our cities for a sustainable future, we must begin to seriously question the logic of locating an airport on precious inner city land. We can and should close London City Airport.

## The case for closing London City Airport

Set in a prime location, London City Airport carries a very high opportunity cost in the traditional economic sense, but also in a social and environmental sense. It contributes to London's poor air quality, carbon emissions and community blight in surrounding Newham (already one of London's most deprived boroughs), and causes noise pollution across much of east and south-east London. Generating relatively few jobs for locals, its benefits are felt almost exclusively by wealthy business people travelling to and from Canary Wharf and the City of London.

Now is the perfect time to think about alternatives. Crossrail, due to be operational within five years, will dramatically cut journey times between east and central London and London-area airports, allowing City workers to access Heathrow in just 30 minutes. At the same time, the current review of aviation capacity in the south-east should give us a chance to radically rethink the management of UK aviation.

#### A sustainable neighbourhood vision

With 70% of the world population expected to live in urban areas by 2050, cities must lead the way in demonstrating how we can rapidly reduce carbon emissions, live within our environmental limits and achieve a fairer distribution of economic benefits. If London City Airport was closed, we could replace it with a beacon of innovation that could generate huge value to the local community and Londoners more widely. This report explores an alternative vision for the site. Based on examples of sustainable cities worldwide and

conversations with local people and experts – including architects, planners, social geographers and investors – we identified six key characteristics of the new sustainable neighbourhood:

- **Natural design:** Architecture is playful and fun, inspired by nature in its structure and materials to increase resource efficiency. It generates more renewable energy than is consumed in the neighbourhood. Buildings are a growing landscape, creating space for food production and wildlife.
- A layer cake of activities: Buildings are a 'layer cake' of different activities, with shared social space at the top and a mix of residential and flexible work space below that can be adapted to the needs of the people using it.
- **Convivial:** Everything, from work to home to leisure, is within walking distance. Children live no more than five minutes away from green play areas. Shared spaces and cultural venues encourage interaction, and the mixed size and affordability of housing stock ensures a diverse community.
- A cooperative neighbourhood: Community ownership ensures that housing and workspaces are permanently affordable, and that locals get a stake in the area's renewable energy infrastructure and other assets.
- A dynamic connected economy: A new business economy is encouraged, designed on cradle-to-cradle principles which treat waste as a valuable asset, and where products are made to be reused.
- A place to visit: thanks to new attractions, and easy and fast access via Crossrail, the area becomes somewhere that people from London and beyond want to visit.

Cities can evolve into net producers of renewable energy, food production centres and convivial places to live and work. But this means taking a much broader view of value-creation, encompassing social and environmental as well as economic benefits now and in the long-run. It also encourages thinking about who value is created for when land is used for particular purposes. We need to transform current patterns that lock local people out of their own neighbourhoods – through deprivation, inequality of resources, or through lack of a local voice.

Our argument is that more healthy, resilient and sustainable economies will depend on a framework for fairness and access to decent livelihoods; a framework that creates opportunities to achieve greater well-being for everyone.

## About this report

This report is about why we need to think seriously about closing London City Airport. If leaders are bold and make that happen then we propose that a new model of development should be launched for London in the Royal Docks which would complement other regeneration projects in the area and bring a new balance to what is possible in the city. Not only would this offer huge direct benefits to east London but it would place the area on the world map as a beacon for sustainable neighbourhoods.

With this positive vision in mind, we have highlighted our vision of an alternative model upfront in this report because it shows what is possible. Following an initial sketch of the local area, we present the main characteristics, themes and features for redesigning the London City Airport site – brought to life visually in the accompanying poster.

The detailed case for closure of the airport on which a stronger local economy and community depends is then set out in Chapter 4.

We conclude with four recommendations for practical steps to make it happen.

## Recommendations

To take forward the work laid out in this report we recommend:

- London's Mayor, in consultation with the national government, to look seriously at closure of London City Airport at the earliest opportunity within a context for south-east aviation that does not expand airport capacity further.
- **2.** The Greater London Authority (GLA) and the London Borough of Newham to work towards an investment solution to deliver the London City Airport site into a community land trust model of ownership.
- Local authority and community residents and business representatives to draw up a strategy to successfully access investment to deliver a sustainable neighbourhood on the site.
- **4.** Partners in policy-making institutions and the community to draw up a framework to ensure community-level engagement in detailed planning of the London City Airport site and for that planning to be put into action.

## 1. The local area today

In 2011, the mayors of London and Newham focused attention on east London as a model of sustainable city living with their *Vision for the Royal Docks* – a joint strategy for the regeneration of the Royal Docks in east London. But with an airport in its midst, how can this be achieved?

This report looks at the possibilities for the land currently encompassing 48.5 hectares (around 500,000 square metres) occupied by London City Airport since 1987.<sup>1</sup> The airport is situated in the Royal Docks ward in the most southerly part of the London Borough of Newham close to the River Thames.

This chapter looks at the Royal Docks and surrounding areas of east London today. Then we examine in more detail the plans to transform the area, including the airport.



The map of London boroughs shown in Figure 1 shows how close to the centre of London the airport is – 5 miles east of the City of London and 2 miles east of Canary Wharf. The airport authorities highlight this core location, but placing an airport in such a densely inhabited area – where land is at a premium for housing, business and recreational use – contradicts the possibility of creating a healthy city for large numbers of citizens. In addition, east London continues to account for a sizeable proportion of the worst deprivation in the country. Over several decades, it has not been served well by a trickle-down model of economic development.

This is why we propose an alternative model, demonstrated at a neighbourhood level that can complement current investment plans for the area to achieve a fairer and more balanced approach to achieving good lives for everyone.

#### The local neighbourhood

Within the wider area, the communities closest to the airport site are the Royal Docks areas of North Woolwich and West Silvertown which sit due south and south-west of the airport. These are the communities which are most directly affected by the airport operations and would most immediately benefit from a re-designation of the land the airport sits on.

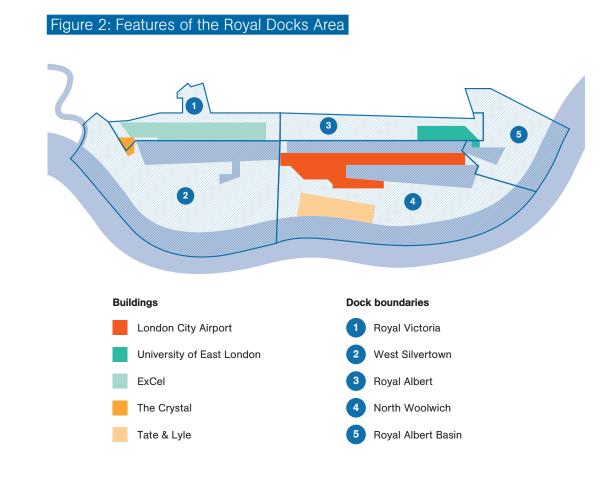
The map in Figure 2 shows how these communities are shaped by their location, occupying as they do a wedge of land with hard boundaries, formed to the north by the docks and the airport, to the south by the River Thames, and to the west by major roads. As well as the airport, this small area hosts the Tate and Lyle sugar factory, but it does not include adequate shopping facilities, community amenities or good transport links to other neighbourhoods and centres where children go to school and adults go to work, shop or carry out other essential activities.

"To buy food you have to leave the area... we have a library but only ten people can fit in it." Member of the community at focus group discussion

What North Woolwich and Silvertown do have, however, are striking assets among its people – a sense of enterprise, cooperation and imagination.<sup>2</sup>

"The way forward is to develop your own businesses – there are skills in the area but we need support to make them into a business." **Member of the community at focus group discussion** 

"There's a lot of people round here with a lot of talent." **Member of the community**<sup>3</sup>



## Box A: What the community says

## What is valuable about the neighbourhood?

- "Strong community spirit"
- "A bond between people"
- "Generally people feel safe"
- "Children are well-behaved"
- "Royal Victoria Gardens"
- "Local choir"
- "Woman have craft skills they could use to generate income"

## What are the challenges?

- "It can feel like an island out on its own"
- "The council doesn't listen; nor does it tell people its plans"
- "The area will be gentrified and people will be moved out"

#### The Royal Docks within the wider area

Within a few miles radius of London City Airport are the major centres in Newham, including Canning Town, Stratford and West and East Ham, as well as parts of Tower Hamlets, Barking and Dagenham and Greenwich. This part of London has been historically industrial and it still retains industry, for example, food and waste processing, and sewage treatment plants.<sup>4</sup> Overall, however, industrial decline has characterised the area over a number of decades. Closure of the docks in 1981 was an important contributory factor in industrial decline in Newham and beyond. This, together with a relatively low ratio of businesses to residents at half the London average, has led to sustained high levels of unemployment.

Associated with industrial decline, another characteristic of east London has been marked deprivation. Newham and Tower Hamlets have been in the top ten most deprived boroughs in the country in every year between 1999 and 2009, with Barking and Dagenham also in the top ten in a number of those years.<sup>5</sup> Newham, Tower Hamlets, Barking and Dagenham and Greenwich all appear in the top twenty most deprived local authorities in the country according to the government's Index of Multiple Deprivation.<sup>6</sup> There is evidence to suggest that among the worst areas of deprivation within Newham are areas in the south west of the Borough and around North Woolwich in the Royal Docks.<sup>7</sup> However, major investment in the east of London has begun and is set to gather pace, not least to build on the catalytic effect of the 2012 Olympic games.

Newham, and particularly the Royal Docks area, has major assets in its people and geography which make it an exciting area of opportunity to create a flourishing and sustainable neighbourhood. It has a young, diverse population and natural assets, including relatively cheap land compared with other parts of London, and rich water resources. It is close to the centre of London and already has good surface connections in place locally to adjacent boroughs – for example, the Emirates Air Line connects the Greenwich Peninsula across the river with the Royal Docks in Newham, to the wider London network via the Jubilee Line and Docklands Light Railway, as well as international and regional access through its overground and Eurostar connections at Stratford station.

Alongside the latent opportunities in Newham and other local boroughs, there is an urgent need for job creation and opportunities for local people to build livelihoods. More and better housing is a priority, evidenced by the fact that Newham has the highest rate of overcrowding in the country, with over 25% of households living in cramped accommodation.<sup>8</sup> Access to green spaces is also a fundamental for health and recreation. Rates of premature death are high in Newham and Greenwich and childhood obesity rates are at or above 25% in Newham, Tower Hamlets, Barking and Dagenham and Greenwich.<sup>9</sup> Across local authorities in England, Tower Hamlets and Newham feature in the bottom ten in terms of the number of healthy life years for their populations.<sup>10</sup> Overarching all of these factors is a need for local people to be heard and given a real stake in their own area and to benefit from its resources and potential.

### Box B: A rich economic and political history

- The Royal Albert Dock, Royal Victoria Dock and King George V Dock, completed between 1855 and 1921, formed the largest enclosed docks in the world with a water area of nearly 100 hectares (around 250 acres), within an overall area of 445 hectares (nearly 1,100 acres).
- In the nineteenth century, Newham grew to be the most important manufacturing centre in southern England but within a generation industries had declined, creating mass unemployment and emigration.<sup>11</sup>
- Keir Hardie was elected as the first Labour Member of Parliament in Newham (then West Ham) in 1892.<sup>12</sup>

## Box C: Local people are young, diverse and on the move

The Royal Docks itself has a resident population of some 12,000 people but is part of the most heavily populated local authority in London. Newham residents number over 300,000 and it is also London's fastest-growing borough.<sup>13</sup>

Immigration and a high birth rate mean that Newham has one of the most ethnically and linguistically diverse and youthful populations in the country. The high number of young people offers the possibility of a 'demographic dividend' as the proportion of working-age people in this part of London grows relative to other parts of the UK. But people tend to leave the area if they can because of a lack of good housing and amenities.<sup>14</sup>

## Box D: Recent investment has brought new features

Investment in recent years has introduced greater mixed use of land. Newham especially is now host to a number of new developments, including the Queen Elizabeth Olympic Park as well as the Westfield shopping centre at Stratford City, Stratford Eurostar interchange, the ExCeL London Exhibition and Convention Centre, the new campus at the University of East London and The Crystal – a Sustainable Cities Initiative by Siemens. Slightly further afield are historic attractions and parkland in Greenwich which could gain greater local access through improved connections.

## Box E: The Royal Docks has potential to be a beacon of urban environmental progress

The Royal Docks is already home to Siemens' The Crystal, the world centre for thinking about, researching and designing sustainable cities of the future.<sup>15</sup>

London overall ranks eleventh out of thirty in the European Green City Index.<sup>16</sup> Carbon dioxide emissions in 2006 were 5.8 tonnes per Londoner, slightly above average for the European cities studied at 5.2 tonnes. Related to this is London's relatively poor performance in terms of its use of renewable energy and its transport impact, mainly because of poor scores on cycling capacity and public transport networks.

## **Box E: Continued**

Both Newham and Greenwich had CO<sub>2</sub> emissions per head lower than the London average of 4.8 tonnes in 2011.<sup>17</sup>

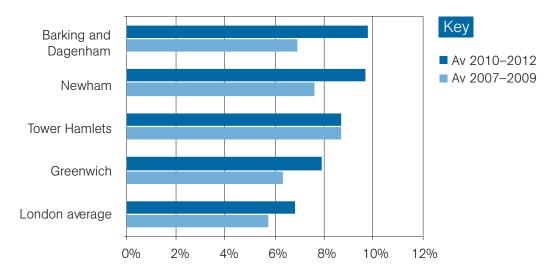
London's air pollution has been called "an absolute crisis" and improving it is a priority for the London Mayor.<sup>18</sup> Tower Hamlets is in the top three worst local authority areas for air pollution according to figures for the percentage of deaths attributable to air pollution.<sup>19</sup> Newham appears tenth among London boroughs on the same measure.

#### Work and unemployment

Within Newham there is a high level of public sector employment, with retail a further major employer. In 2008, 36.4% of Newham's employment was in the public sector, significantly higher than the London average of 22.2%.<sup>20</sup>

According to London's Poverty Profile 2013, the proportion by borough of residents paid less than the London Living Wage is highest in Newham. One-third of employees living in Newham were paid less than the London Living Wage between 2010 and 2012.<sup>21</sup>

Newham has one of the highest rates of unemployment in London with nearly one in ten adults of working-age unemployed.<sup>22</sup> Figure 3 below shows that, among the boroughs surrounding the Royal Docks, unemployment is consistently higher than the London average and in all cases shown, with the exception of Tower Hamlets, it has grown in the past several years. Barking and Dagenham, Newham and Tower Hamlets rank first, second and third in the whole of London in terms of rates of unemployment.



#### Figure 3: Working age population unemployed by borough

Source: London Poverty Profile 2013, unemployment by borough

Newham and Greenwich are among those parts of London which have a high proportion of their working-age population experiencing illness or disability that limits their daily activity. For both these boroughs the rate is over 12%. Barking and Dagenham is the only area with a higher rate at 14%.<sup>23</sup>

East London as a whole has a relatively high rate of welfare support claimants compared to other parts of London. The Royal Docks has a particularly high claimant count at a rate of 20.1% of the population, even within Newham which has a relatively high rate at 14.5% compared with the average in the country of 13.6%. In terms of key unemployment benefits, the claimant rate is 17.6% in the Royal Docks compared with 12% in Newham, and 10.9% in Britain as a whole.<sup>24</sup> Again this emphasises the challenge of unemployment in and around the Royal Docks.

## Box F: A mixed picture on educational attainment and skills in east London

Since 2008/09 boroughs in east London have made strong improvements in educational attainment. Newham increased the proportion of pupils achieving 5 A\* to C grades, including English and maths from 47% to 62% from 2008/09 to 2011/12. Greenwich did even better, producing an increase from 43% to 63%.<sup>25</sup>

By contrast, Greenwich has the highest proportion of 19-year-olds with no qualifications in London at 52%. Newham also performs poorly with 41% of 19-year-olds with no qualifications and 15.3% of 16- to 64-year-olds with no qualifications compared to 8.4% for London as a whole, and 9.9% for the UK.<sup>26</sup>

## **Regeneration and the Royal Docks**

With the closure of the Royal Docks to shipping in 1981, the London Docklands Development Corporation assumed responsibility for the regeneration of the Royal Docks area, including the development of London City Airport in 1986, and improved road and rail links. In 2000 the responsibility for regenerating the Royal Docks and ownership of the land passed to the London Development Agency (LDA) which was later absorbed into the Greater London Authority (GLA).<sup>27</sup>

The Royal Docks area now lies within the wider East London Green Enterprise District which aims to attract a concentration of low-carbon technology, manufacturing and research organisations. And the southern parts of Newham are included in the Thames Gateway region, a national priority area for regeneration. As described, recent developments in the Docks have included a new Campus for the University of East London and the ExCeL London Exhibition and Convention Centre. The Siemens Crystal exhibition and conference centre at the western end of the Royal Docks completed in 2012 provides a permanent showcase of technologies to support sustainable cities. Development of a decentralised energy grid for domestic and commercial use is one of the tangible commitments to reducing carbon in Royal Docks development plans.

With these and upcoming planned developments there is a stated intention to make the Royal Docks a model of green enterprise and environmental sustainability. Apart from ensuring people have access to the opportunities created<sup>28</sup> it is not clear how this approach differs from the often repeated inward investment strategies that are in evidence along the Thames which have resulted in the displacement of existing poorer communities with imported wealth.

#### Newham's Arc of Opportunity

Newham has designated an 'Arc of Opportunity' incorporating the Olympic Park, the Westfield shopping centre, Canning Town and the Royal Docks area. The local authority envisages that, by 2025, £22 billion will have been invested in this zone overall with residential, business, retail and leisure developments.<sup>29</sup>

#### Joint London-Newham vision for the Royal Docks

In 2011, the mayors of London and Newham jointly released a vision and strategy documents for regeneration of the Royal Docks London's next business district within the knowledge economy, drawing on the heritage of the area to create an exemplar of a sustainable city.<sup>30</sup>

"We intend to transform the Royal Docks into a world-class business centre: a world-leader in high technology, green enterprise and research and an international forum for the exchange of knowledge and ideas. We envisage the waterfront as a hub of activity once again; a thriving leisure destination for Londoners and visitors alike.

"Our vision is dependent on enduring development that draws on the area's character and heritage and is outstanding in terms of place-making, environmental performance and design...The Royal Docks will offer an urban exemplar for a sustainable world city. It should be an outstanding place to live, work, play and stay."

#### A Vision for the Royal Docks, March 2011

The vision aims to provide a shared political approach to give increased certainty for developments. It also proposes a range of policy tools, including the potential to access 150 hectares of land held in public ownership, to "unlock the regeneration potential" of the area.<sup>31</sup>

As part of this vision, in 2012, 125 hectares (approximately 5 million square feet) of commercial and residential development land adjacent to London City Airport were designated an enterprise zone. New businesses locating there by April 2015 will benefit from reduced business rates for five years.<sup>32</sup> The business rates will be retained by the local enterprise partnership London Enterprise Panel<sup>33</sup> for 25 years to create an economic development fund for reinvestment across the capital, rather than necessarily reinvestment in the Royal Docks area.<sup>34</sup>

#### Asian business park and Silvertown Quays development

In June 2013, two large developments were announced. The GLA signed a £1billion deal with Chinese real estate developer APB to develop Europe's largest Asian business park (3.5 million square feet of low-rise office space, retail and serviced apartments), which reportedly will create 20,000 jobs, with the first phase of the development expected to open in 2017.<sup>35</sup> The Silvertown Quays development, a 50 acre site which houses the well-known landmark

and favoured film location the Millennium Mills,<sup>36</sup> and the former London Pleasure Gardens,<sup>37</sup> is described as an "innovation quarter". Projected to create 9,000 jobs, it is described as a mix of exhibition spaces for "top brands to showcase their latest products and interact with their customers", office space for technology companies and green enterprises, 1,500 residential units, leisure facilities and a new bridge connecting the ExCeL centre to Customs House Crossrail station.<sup>38, 39</sup> In March 2013, the Mayor of London launched an international competition to develop the 15 acres of water at the Royal Victoria Docks into a floating village.<sup>40</sup>

Sitting incongruously in the middle of this official vision for a sustainable city exemplar is London City Airport, situated to the south of Newham, close to the Thames. It is acknowledged as a reason for restricting the height of other developments, requiring noise mitigation measures on adjoining sites, and being at odds with the intention to actively encourage the Royal Docks "as the natural home for alternative transport technologies such as boat services, electric buses and cars and other innovative solutions".<sup>41</sup>

## Box G: Community voice: from the People's Plan to the Momentum Project

"We are prepared to listen to alternatives from a statutory body, from the GLC or Newham Council, but from the people ... a people's plan ... ridiculous. I've never heard of such a thing."

Leading barrister for the Docklands Development Corporation<sup>42</sup>

The Royal Docks has a tradition of community activism. In recent times this has spanned three decades of convening power and presentation of the well-formed ideas local people have for a positive path for their area. In the early 1980s the threat of an airport on their doorstep mobilised a group of people to come together to develop a positive alternative and win democratic control over the future of their area with a plan of their own.<sup>43</sup> Supported by Newham Council, the People's Plan was presented at the public enquiry for the London City Airport in 1983. The following quote encapsulates the aims of the plan and shows the clear, compelling way that it was presented:

"The People's Plan is first and foremost about jobs. It is also about sports and recreation, but you cannot live on sports. It is about housing too, but it's not enough to build nice houses, there has to be work for the people who want to live in them. It is about parks and open spaces, but you soon want more than parks if you have to spend all day in them. The plan suggests better shopping facilities and provision for entertainment, but these are not much use if you don't have a wage."

A multitude of imaginative but concrete ideas for action were proposed:

- Jobs in the community caring for children and elderly people, jobs on the river and decently paid, part-time jobs to give women more employment opportunities.
- Training and education facilities along with a cooperative employment outlet to turn skills into wage-earning opportunities.
- A house-building programme to provide high-quality homes with gardens fit for residents' needs, including the disabled.

## **Box G: Continued**

- Local shops to provide the range of good-quality provisions locally.
- Good public transport links, including buses and bridges for local people to access neighbouring centres.
- Leisure and entertainment facilities for everyone, including the young and old, and a focus on making use of the water with fishing, boating and canoeing activities.
- A federation of cooperative enterprises around crafts and technology design with an initial idea around schemes to make electronic aids for disabled people.

The People's Plan called for buying back the docks for the people. The then Greater London Council (GLC) had the funds and the will to make the purchase but it was recognised that strong support and pressure was essential to make it happen.

Many of the issues discussed in the People's Plan are still relevant in the community around the docks today. We heard through local conversations that jobs are still lacking, people do not feel they have a voice, and the community suffers from ongoing isolation. What has changed for the community of the Royal Docks between then and now is the reality of living on the doorstep of London City Airport.

Many of the ideas in the People's Plan have been reinvigorated by the Momentum Project, a new initiative coordinated by a voluntary team of community activists, designers, social innovators and communications experts working towards a progressive vision for quality of life and long-term environmental and social sustainability. The project is focused locally in the Royal Docks but its vision and principles are applicable to communities across the country.

## "If the goal is to have safer, healthier, democratic neighbourhoods in our cities that are also carbon zero, resilient and self-sustaining, then we must create the conditions that are built around the needs and aspirations of the people who live in them."<sup>44</sup>

The Momentum Project aims to unite the needs of local businesses and local people in the Royal Docks and give people and businesses a chance to try out new forms and organisation of economic activity. But it is also about bringing people in the community together in supportive social networks to spark ideas and create a real sense of enjoyment. Momentum's community choir is one example of the vibrancy the community has.

## 2. Sustainable cities: what is needed

Plans are afoot to develop the Docks area with green districts, business parks, enterprise zones and areas of sustainable city living. With the combination of climate change and increasing urbanisation, it is more important than ever we plan cities and create urban spaces that support people to thrive while balancing the needs of economy, society and the environment.

#### **Sustainable cities**

Urbanisation is one of the defining trends in human development, and with 70% of the world's population forecast to be living in cities by 2050,<sup>45</sup> there is increasing pressure to find ways to design and manage cities to support people to live well, and within environmental limits.

Adaptation to climate change, decreased access to cheap fossil fuels, changing technology and energy resources, addressing the increasing level of inequality and an ageing population are the key challenges facing UK cities over the next 20 years.

## **Energy consumption and climate change**

In the UK, the largest 20 cities are responsible for more than 20% of the national carbon emissions  $(110.5 \text{ MtCO}_2)^{46}$  and energy consumption. Although living together in urban areas offers the potential to organise how we use resources more efficiently, we are currently failing to capitalise on these efficiencies. In London, the built environment, which reflects the richness of its social and economic history, can also serve to lock residents into unsustainable patterns of living in terms of transport choices, energy-inefficient homes and dependency on fossil fuels more generally.

Commercial buildings, residential buildings and transport account for 42%, 37% and 15% respectively of London's carbon dioxide (CO<sub>2</sub>) emissions.<sup>47</sup> A target has been established to reduce these emissions by 60% by 2025, particularly focusing on transport.<sup>48</sup>

### **Box H: Climate facts**

"Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, the sea level has risen and the concentrations of greenhouse gases have increased." Intergovernmental Panel on Climate Change, 2013<sup>49</sup>

- The global average temperature has increased by about 0.8°C since pre-industrial times.<sup>50</sup>
- Each of the last three decades has been successively warmer at the Earth's surface than any preceding decade since 1850. Over the last two decades, the Greenland and Antarctic ice sheets have been losing mass.<sup>51</sup>
- The global commitment is to keep global warming below 2°C which is the likely threshold between 'dangerous' and 'extremely dangerous' global warming.<sup>52</sup> However, present world greenhouse gas (GHG) emission trends will lead to a temperature rise of over 3°C by the end of the century.<sup>53</sup> A 4°C rise in temperatures would be devastating, leading to an intensification of weather extremes and irreversible loss of biodiversity.
- It is estimated that an investment of just 2% of UK gross domestic product (GDP) now would be sufficient to prevent costs of 20% of GDP in the future.<sup>54</sup>
- The price of oil has risen tenfold over the last century, mainly a result of sources of easy-to-extract oil are reducing rapidly.<sup>55</sup>
- Coal power overtook gas in 2012 to become the biggest source of UK electricity. As a result, official figures released in 2013 show CO<sub>2</sub> emissions rose by 3.5% to 552.6 million tonnes, reversing a longer downward trend.<sup>56</sup>

## Inequality in cities: a major challenge

"Any city however small, is in fact divided into two: one the city of the poor, the other of the rich." **Plato, 427–347BC** 

"Because the truth is, the state of our city, as we find it today, is a tale of two cities – with an inequality gap that fundamentally threatens our future." Bill de Blasio, Mayor of New York, 10 February 2014

Cities have long been a hotbed of economic inequality. Across high-, middle- and low-income countries, the growth in urban populations has been associated with a growth in economic disparities in cities.<sup>57</sup> However, while some inequality is inevitable, the costs associated with its negative impacts means that it can no longer be ignored or tolerated.

Evidence consistently shows that higher levels of economic inequality are associated with lower social trust, social mobility, well-being, and higher crime rates.<sup>58</sup> And, contrary to common economic beliefs, research increasingly shows that higher inequality can have a dampening effect on economic growth<sup>59</sup> and also contributes to a less favourable environment for investment.<sup>60</sup> Analysis by the United Nations Human Settlements

Programme (UN-HABITAT) also shows that greater urban inequality heightens and complicates the task for programmes aiming to address health and nutrition, gender equality, education and environmental sustainability.<sup>61</sup> Finally, as inequality can exacerbate insecurity and increase the likelihood of social unrest, it diverts public and private resources from social services and productive investments to expenditures for safety and security.<sup>62</sup>

The social, economic and environmental problems generated by high levels of inequality not only threaten the social harmony of cities, but undermine our ability to build sustainable cities fit for future economic and environmental demands. It is important then to build a robust response to tackle inequality. The knee-jerk policy reaction is to tax and redistribute, but this function is typically controlled by national rather that city or regional government. Other potential tools, such as education, can only go so far to address the multiple drivers of inequality, which include financialisation, declining trade union and collective bargaining and the proliferation of low-paid and insecure jobs.<sup>63</sup>

For a city like London, growing inequality is the outcome of a number of interacting global and national market forces sifted onto an already unequal landscape. If policy is to address these underlying drivers of growing inequality, any response demands a shift in the housing infrastructure, strengthened access to public services, transport and amenities and reform of the labour market.

#### **Technology and energy resources**

The technology needed to make our cities more efficient in terms of our energy, transport and water usage is becoming increasingly available. From smart grids controlling energy supply and demand to intelligent transport planning systems reducing congestion,<sup>64</sup> digital technology is opening up opportunities to respond to some of our technical challenges to better coordinating our use of resources at a city or neighbourhood level.

Innovations in harvesting renewable sources of energy – such as solar, heat, biomass, or wind power – are basic features of cities striving to be more sustainable.<sup>65</sup> In industrial design and architecture, 'biomimicry' – defined by Michael Pawlyn as "mimicking the functional basis of biological forms, processes and systems to produce sustainable solutions" – is reconnecting professionals to nature's ingenuity and the embodied technologies of biological organisms in the natural world. Biomimicry is informing solutions to problems as diverse as energy production, manufacturing benign materials, to producing lightweight structures for buildings and bridges and will become increasingly important in reshaping our cities for the future.<sup>66</sup>

"Cities have been developed to meet the needs of a different economic era, which means that the relationships, opportunities and infrastructure are not optimal for what we need now – whether it's an imbalance in London between financial services and other sectors, or out-of-date housing stock, or out-dated ownership models."

Quote from interview for this research

#### **Dealing with an ageing population**

Developing a sustainable city is more than installing a technological solution. A sustainable city has to provide sufficient housing to meet housing needs of the diverse range of its citizens, and provide space for business activities. The real challenge is to create urban environments that support people to thrive while being as harmless to the planet as possible.

In a city as diverse as London, it is important to ask who is living in these communities, and who is effectively excluded. This is particularly topical at a time when recent changes to welfare payments and ever-increasing housing prices are pushing more people in London on lower incomes to the margins of the city due to a lack of affordable housing.

Over the next 20 years, it is estimated that the number of people aged over 60 in the UK will increase by 40%. This will impact on the demographic make-up of cities and have implications for transport and care provision across the city. Building communities that tackle social isolation and promote intergenerational spaces will become increasingly important.<sup>67, 68</sup>

#### Innovations and future flexibility

Designing in flexibility is also important for the sustainable city and the people living in it. As the world of work changes from long-term, secure jobs towards much greater flexibility throughout working life, it is increasingly likely that people will not only change employers over time, but also their roles and occupations. Short-term contracts and less-formal working arrangements are becoming more common. With these changes is a growing recognition that people should have access to lifelong learning, training and support opportunities so they can broaden their skills.

Arguably, it our economic system that lags behind in demonstrating the necessary innovations for a sustainable future as it remains stuck in a narrative of continuous growth, even in the face of finite resources, and scientific evidence that human activities are driving changes in global climate.

#### Characteristics of a sustainable city

To rise to some of the challenges outlined above, a sustainable city needs to exhibit four fundamental characteristics:

- 1. Creates well-designed, liveable neighbourhoods
- Well-designed neighbourhoods which are beautiful, functional and designed to adapt to climate change. Work, living and green playing spaces are within walking distance, with facilities which encourage their use by a diversity of ages, incomes and cultures living in the area.
- **Distinctive and inclusive** characteristics of the neighbourhood are developed to give a sense of place, and the provision of decent, affordable energy-efficient housing ensures the area remains open and inclusive to a diverse range of people.

- **Efficient** transport, energy and water infrastructure is designed to minimise environmental impact and reliance on fossil fuels.
- 2. Supports a dynamic, connected economy which produces near-zero waste
- **Good jobs** which provide a decent income (minimum threshold as per the Living Wage), good conditions, secure employment with opportunities for progression, and satisfying work.
- Enterprise at an appropriate scale: Develops a more diverse economy and local job opportunities by supporting a vibrant micro and small business sector, and encouraging new business models which reinvest wealth back into their local area.
- **Circular economy:** A developed interconnected economy across the city designed on 'cradle to cradle' principles, where waste is treated as a valuable asset, and products are designed to be reused again and again (see 'Cradle to cradle' box below).
- **Supportive financial system.** That seeks to invest in the long term by providing affordable 'patient capital' that works for people and their businesses.
- 3. Promotes active citizenship and greater levels of equality
- **Shared ownership** and control over key resources such as renewable energy generation and land.
- Active involvement in decisions which shape the city and governance mechanisms that enable everyone to take part.
- Lifelong learning and training. Access to training opportunities to support people to adapt and change their roles and occupations over their life time through formal education and informal peer-to-peer and online resources.

# 4. Provides responsive public services able to adapt to climate change and the changing needs of the city residents

- **Lifetime access** to a range of effective public services that meet education, health, recreation and health needs.
- **City planners** are applying a long-term adaptation strategy and preparing the city for the effects of climate change for several future generations.

## Box I: Cradle to cradle

Reflecting on how most products are manufactured to be used and disposed of, either by incineration or buried in landfill, architect William McDonough, and chemist Michael Braungart, applied the concept of cradle to cradle to design and manufacturing to envision a closed-loop system where every material, energy, waste and water are returned to the soil, or back into the manufacturing process with no harm or loss of quality.<sup>69</sup> This contrasts with recycling, where many of the products made from recyclates are a lower material quality than the original – what the authors term as *downcycling*. Plastics are often recycled into products such as flower pots or park benches, involving a mixture of plastics which are virtually impossible to separate and recover. The journey to the incinerator or landfill has thus only been delayed rather than averted.

## **Box I: Continued**

Cradle to cradle is characterised by three principles derived from nature:

- Everything is a resource for something else
- Use renewable energy
- Celebrate diversity

Cradle-to-cradle thinking is being applied to a broad range of topics from industrial processes, to fashion and neighbourhoods in a number of countries, including the Netherlands, Sweden and the UK. Kilen, a centrally located old industrial area in Sweden is working to become the country's first cradle-to-cradle inspired neighbourhood.<sup>70</sup> In London, cradle-to-cradle principles will be applied in the city's first Sustainable Industries Park, based on a 75,000 square metre site in Dagenham.<sup>71</sup>

## 3. A new vision for the London City Airport site

What if the vision for a sustainable city across the Royal Docks was supported by a bold decision to remove the London City Airport? What would the remodelled site look like as a sustainable neighbourhood? A range of experts gave us their views and a picture of themes and practical case studies emerged.

"Political will is the key barrier – the Olympics, and the re-construction after World War II demonstrate what is possible in a short space off time if the will and drive is there."

Ashley Dobbs, architect

By looking at projects and developments in cities around the world, and through interviews with local east Londoners, architects, planners, social geographers and policy-makers, NEF has developed a vision for the land currently occupied by London City Airport.

This vision takes into account the characteristics of a sustainable city and looks more closely at important themes and features for the London City Airport site which could transform it into a sustainable neighbourhood which encompasses the key characteristics for cities as a whole, played out at a local level.

Our purpose is not to state a detailed vision; this report is not a blueprint. Rather, in developing our vision, the aim is show that alternatives to businessas-usual are possible, that local voices and a democratic approach are essential to designing the features of an area and to show how such an alternative might look.

We hope to inspire and excite everyone who reads this report and catalyse and focus debate.

If a bold decision was made to remove London City Airport and remodel the site as a sustainable neighbourhood to complement the vision for a sustainable city across the Royal Docks, what would the key features of this development look like?

Posing this question to a group of local residents and experts from a broad range of perspectives, including architects, academics, developers and finance, the following collage of interrelated design themes and features for the 130 acre site emerged.

We have identified examples to illustrate these themes, drawing on case studies from around the world.

"A sustainable city should be food and energy positive and fun – overall it should be harmless to the planet. In a visual sense that would translate into green fingers from the wilderness to the cities." **Quote from interview for this research** 

# Theme 1: Natural design – buildings of 10 to 12 storeys should rise like a forest

- Higher density will increase the efficient use of the site and support more compact living through well-designed smaller spaces.
- Plants integrated into the fabric of the buildings as edible landscapes create walls covered with life, increasing spaces for wildlife to flourish.
- The design both playful and fun is a spectacle of natural textures and shapes.
- Translating adaptations in biology into architectural solutions embodied in the materials and structural efficiency of the buildings (biomimicry) radically increases the resource efficiency of the neighbourhood, and resilience to flooding.<sup>72</sup>
- Solar energy generation and water harvesting systems are integral to the building design, making the neighbourhood a net positive producer of energy.

## Box J: Living walls in Madrid

Green or living walls<sup>73</sup> in cities help to reduce the overall temperatures of buildings, as the plants' surfaces do not rise more than 4–5°C above the ambient temperature due to transpiration. In combination with other green space they can be used to mitigate the urban heat island effect in cities. The primary cause of heat build-up in cities is the absorption and release of solar radiation by roads and buildings. The living wall can function aesthetically, or be used for urban food growing, and examples can be found around the world. CaixaForum museum in Madrid, inaugurated in 2008, has a vertical garden covering one of the exterior walls of this former power station. Designed by Patrick Blanc, the garden wall is covered by 15,000 plants from more than 250 different species.

## Box K: Biomimicry in Zimbabwe

The Eastgate Centre<sup>74</sup> in Harare, Zimbabwe completed in 1996, applies biomimicry principles to the country's largest office and shopping complex, inspired by Zimbabwean masonry and the self-cooling African termite mounds. The mid-rise concrete building has no conventional air-conditioning or heating; the ventilation system uses fans to draw air from the outside, which is either warmed or cooled by the building's mass, depending on whether the building or the outside is hotter. As a result, the building uses less than 10% of the energy of a conventional building of the same size. These savings are passed on to the tenants whose rents are 20% lower than in the surrounding buildings.

## Theme 2: A layer cake of activities

- Buildings are a layer cake of activities, with shared social space at the top floor, and a mix of living and working space below.
- Emphasis is placed on the flexibility of space so it can change and adapt to the needs of the people using it, be that social or work space.
- Walking and cycling bridges connecting the dock to the surrounding area also accommodate pop-up enterprises, green spaces and other worthwhile uses.

## Box L: Connecting communities in New York

The High Line in New York is a disused, elevated railway line in on Manhattan's west side that has been developed by a community group in partnership with the City of New York into apublic park. The first section of the development, Gansevoort Street to West 20th Street, opened to the public in 2009. The third and final section of the High Line at the rail yards will be opened in 2014.<sup>75</sup>

## Theme 3: Convivial

- In this human scale development, everything is in close proximity work premises, leisure, local shops providing for day-to-day needs. Children live no more than five minutes away from green play areas. The area is designed for walkability with a dense network of short, car-free streets.
- Shared space, both within and outside of the buildings, encourage interaction.
- Mixed size, affordable housing provision ensures a diverse residential community.
- Space for art and cultural activities, including small live music venues, are available across the neighbourhood.

## **Box M: Convivial and healthy – Copenhagen Harbour Baths**

Completed in 2003, the Copenhagen Harbour Baths<sup>76</sup> have transformed an industrial quayside with a system of 1,600 square meters recreational bathing facilities along the waterfront of Copenhagen, Denmark. There are currently four harbour baths, the first and best-known of which is at Islands Brygge, which has five pools and capacity for 600 people. Active spaces in cities tend to be developed for the already active. To encourage healthy cities, the design of cities should include spaces for use by different people. This is exemplified in the baths with two shallow pools for children, two 50m deeper pools for swimming, and a diving pool. The surrounding grassed area provides places for people to enjoy the baths without having to swim. The baths offer a playful and functional design which can be permanent or temporary structures, a modern version of the much-loved lidos that can still be found in London. The baths have also been made possible because of the determined effort to improve the water quality of Copenhagen Harbour.

## Box N: Streetscapes in cities worldwide

Streetscapes should be thoughtfully and artistically designed to draw more people to walk for utility and pleasure. The most successful and best-loved cities in the world have vibrant, walkable streets – from the main boulevards in Melbourne, Australia, the pedestrianisation of Broadway in New York, to the streets of Mexico city.<sup>77</sup>

### Theme 4: A cooperative neighbourhood

- A Community Land Trust (CLT) underpins the ownership structure of the neighbourhood. The CLT controls the land and buildings which have been transferred from the GLA and holds these in trust to ensure permanently affordable housing and business workspace in the neighbourhood (see 'Affordability through community ownership' box below).
- A community energy share issue funds the renewable energy infrastructure within the neighbourhood, giving people an opportunity to invest in their area in affordable amounts.
- Maker spaces add to the diversity of the local circular economy by disrupting the cycle of 'buy, use and bin' by providing access to shared tools, resources, training and know-how to up-cycle materials and encourage collaborative consumption (see 'Maker spaces' box below).
- Not all space is designed; flexible infrastructure leaves space for the imagination to adapt the space to needs.

"Finding a technical fix is only a small part of the solution – implementing the right business models, finance mechanisms, governance and legal structures and decision-making tools will have equal if not higher impact."<sup>78</sup>

## Box O: Affordability through community ownership

There are a number of tried and tested models of community ownership, forming the foundation for vibrant communities around the world due to their ability to provide permanently affordable accommodation.

The Community Land Trust (CTL) is a legal form of shared, non-profit ownership that originated in the US to support community development. Champlain Housing Trust, Burlington Vermont, is the largest CLT in the US, and the first to expand its landholdings through partnership with the municipality. Champlain Housing Trust, was established in 2006 and now has 4,000 members and more than 2,000 affordable housing units, 40% of which are rental property, with the remainder resale-restricted, owner occupied property. Community facilities have also been supported, including an elderly day centre, nursery, business incubator and a credit union shop front.<sup>79</sup>

Adapted for use in the UK, CLTs are used to own assets for the benefit of a defined community. Across the UK today there are examples of housing, community facilities, pubs, farms and workspaces in CLT ownership. The national body for Community Land Trusts in the UK<sup>80</sup> describes five defining features of CLTs:

### **Box O: Continued**

- **Community-controlled and community-owned:** The members of the CLT control it and the assets can only be sold or developed in a manner that benefits the local community. If the asset is sold, the cash realised is protected by an asset lock and is re-invested into something else that will benefit the local community.
- **Open democratic structure:** People who live and work in the defined local community, including occupiers of the properties that the CLT owns, must have the opportunity to become members of the CLT. The CLT actively engage members in its operations.
- Permanently affordable housing or other assets: A CLT will endeavour to keep the homes or assets permanently affordable.
- Not for profit: Any profits generated by the CLT cannot be paid by way of dividend or otherwise to its members but must be used to further the community's interests.
- Long-term stewardship: A CLT retains the freehold of the asset and maintains stewardship role over the building or home by renting it, or some form of equity share.

Building on and updating the original financing model developed by Ebenezer Howard for the Garden Cities, Shann Turnbull has developed a Co-operative Land Bank (CLB) model that can be applied to mixed developments of 5,000–100,000 people.<sup>81</sup> Like CLTs, the Co-operative Land Bank separates the land value from the buildings, but it places the land in a cooperatively owned company to enable it to issue shares. Finance needed for the development is raised by mortgaging the land. All resident home owners would obtain negotiable perpetual leases and shares in the CLB which they would sell back to the CLB when they sell their homes. Residents buy their homes by mortgaging their perpetual leases, and their equity in their dwellings and shares increase pro-rata to their usages over time (established at a fixed yearly rate). Commercial, or non-residents would not have voting shares in the CLB, however, their profitability will be enhanced by removing the cost of land from their business. Speculative estate investment is mostly eliminated in this model. The CLB mechanism allows pension funds and other bank investors to capitalise developments (as does the CLT model) and ensure a fair return to investors without passing on any windfall gains from the uplift in the value of the land.<sup>82</sup> The Coin Street Community Builders on the South Bank in London demonstrates that community ownership of their 13 acres of high-value land in London has been an effective mechanism to promote a vibrant economy and affordable housing around Gabriel's Wharf.

## **Box P: London Citizens**

London's first CLT emerged from a campaign by London Citizens<sup>83</sup> to secure permanent, affordable housing as a legacy of the London 2012 Olympics. East London CLT was established in 2007 as an industrial and provident society, and is solely governed by its members. Formerly owned by the GLA, the derelict site of St Clements Hospital in Mile End, east London will be developed into 21 new homes on fixed-share equity leases. A planning application was submitted in June 2013 following a community design process.<sup>84</sup> With more than half of the cost of a home in London being due to the cost of the land, a CLT is an effective mechanism to keep homes affordable. With land ownership vested in the CLT, the cost of housing can be linked to local earnings.

## Box Q: Maker spaces

**Remakery** is a co-working space for local re-use and upcycling enterprises located in a former underground car park in Brixton, London. Due to open in Spring 2014, Remakery will provide access to materials and distribution networks, and business development support. Established as a Society for the Benefit of the Community, a form of non-profit cooperative, any profits generated will be used to subsidise social programmes focused on skills development.<sup>85</sup>

**Institute of Making** is an example of a university providing access to resources to staff, students and the public with an invitation for them to become makers of things rather than passive consumers. It does this by helping people understand materials and methods. The Institute hosts MakeSpace, a physical workshop which provides access to a range of tools and machinery, and a broad range of expertise from craft, design, technology, history, philosophy, art and engineering of making.<sup>86</sup>

#### Theme 5: A dynamic connected economy

- Space is provided within the neighbourhood for business which are designed on cradle-to-cradle principles, where waste is treated as a valuable asset, and products are designed to be reused.
- Business connections link across the wider area through the green enterprise district.
- A community development finance initiative is established to support access to patient capital for new micro-enterprises.

"This is what you call a community." **Member of the Royal Docks community**<sup>87</sup>

"An advanced city is not one where even the poor use cars, but rather one where even the rich use public transport." Enrique Peñalosa, New Urbanist and Mayor of Bogota, Colombia, 1998–2001

### Theme 6: A place to visit

- Ideas for an aquarium, floating street food festival, and harbour bath draw visitors to the area, in addition to the other attractions in the Royal Docks.<sup>88</sup>
- Crossrail and the Docklands Light Rail make travel to the neighbourhood quick and easy.

Download our illustration of a new vision for London City Airport at www.neweconomics.org/royaldocks.

## 4. The case for closing London City Airport

Closing down airports is nothing new; it has been done before. And current flight traffic from London City Airport can be diverted to other London airports. We want to highlight the key issues and evidence to show that the idea of closing City Airport is feasible and demands investigation. We hope to spur a debate that challenges the status quo and pushes thinking about south-east aviation capacity.

"The airport rules out developments which make better use of our area's natural, historic and human resources." **The People's Plan, 1983** 

The prospect for bringing to life the vision presented in this report depends on replacing London City Airport with an alternative development. This is not simply because closing the airport would free up the land, but also because the airport has a major impact on the local area, actively preventing a sustainable cities approach. In making the case that an alternative vision is possible and achievable we therefore also need to make the case that closing the airport is feasible and desirable. In this section we briefly describe the location of London City Airport in the wider south-east aviation context, before setting out the case for its closure.

## London City Airport in context

London City Airport is known as a niche airport. It is a fraction of the size of the main London-area airports in terms of destinations and passengers as shown in Table 1 and Figure 4. City Airport ranks fifteenth on the list of all UK airports by number of passengers, smaller than Belfast, East Midlands and Aberdeen airports.<sup>89</sup> It caters for 1.5% of total UK passenger demand and around 2.4% of demand at London-area airports.<sup>90</sup> Figure 5 (see page 34) shows the concentration of airports in the London area.

London City Airport is rightly known as a business airport – 54% of its passengers travelled for business in 2012 (even though this is down 9 percentage points since 2010). That is more than for any other London airport; for example, the second most important airport for business travellers, Heathrow, has 30% of its total accounted for by business passengers.<sup>91</sup>

### Table 1: Comparative data for London airports<sup>92</sup>

Indicator	City Airport	Heathrow	Gatwick	Stansted	Luton
Number of destinations	46	184	178	150	107
Number of passengers (per cent share of total UK)	3,349,000 (1.5%)	72,142,000 (31.7%)	35,231,000 (15.5%)	17,682,000 (7.8%)	9,660,000 (4.3%)
UK ranking by passenger numbers	15	1	2	4	5

Data refers to period Nov 2012-Oct 2013



Source: Department for Transport Aviation Statistics93

Not only does business account for most of the traffic through London City Airport, but the businesses that use it are heavily concentrated in banking, finance or associated services. Three-quarters of the airport's passengers begin or end their journeys in Docklands, the City of London or the City of Westminster.<sup>94</sup>

In terms of destinations, London City Airport has a somewhat greater share of its flights destined for the UK as opposed to overseas locations. The share of domestic flights for the airport is 21%, compared with 19% for Heathrow, 17% for Luton, 16% for Gatwick and 12% for Stansted.<sup>95</sup>

## A case for closing London City Airport

Two developments suggest it is both feasible and desirable to plan the closure of London City Airport. In the first place, Crossrail, which is due to be operational by late 2019, will provide a fast link from central London to Heathrow. This adds a new dimension for meeting passenger demand through a more rational approach to existing airport assets. Second, a review of aviation capacity in the south-east provides a chance to radically rethink management of aviation in the context of the Climate Change Act 2008.

There has been a tremendous flurry of activity over the issue of aviation capacity in the south-east with the establishment in 2012 of the Airports Commission under the chairmanship of Sir Howard Davies. Almost without exception, political and public conversations and media coverage assume that more capacity is essential and must be provided. The question is: where should the additional capacity be built? This follows a long tradition of "predict and provide" as the modus operandi of transport policy, aviation included.

In this context, it may seem counter-intuitive to think about reducing airport capacity by closing London City Airport, but now is exactly the time to raise this possibility.

The case for closing the airport is made below in terms of three considerations:

- 1. Is it feasible to divert London City traffic to other London-area airports in terms of their capacity and access to them?
- **2.** What do the economic, social and environmental impacts suggest about the gains and losses of closing London City Airport?
- 3. What light does a distributional analysis shed on the case for closure?

## **Diverting London City Airport traffic to other London airports**

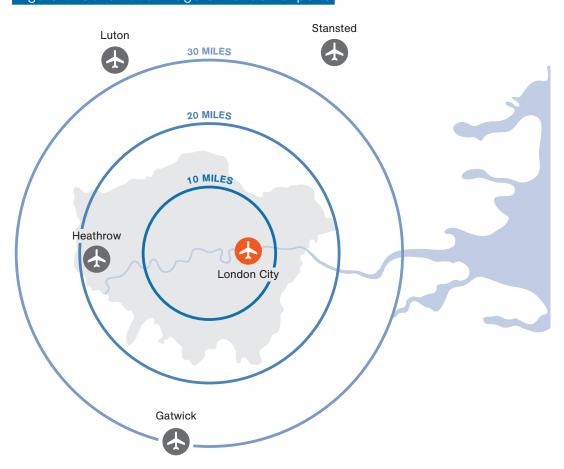
a. There is room to handle London City passengers at other London airports Table 2 shows figures for current passenger numbers travelling through the main London-area airports and how much spare passenger capacity still exists in each case.<sup>96</sup> So, for example, at Heathrow in the year to October 2013 there were around 72 million passengers with total space available for roughly 90 million. This would allow for a further 18 million passengers at Heathrow, an increase of 25%.

The final column shows how much the transfer of all 3 million current London City passengers to each individual airport would add to current throughput. It shows that if all passengers transferred entirely to Heathrow, the addition would increase total numbers by 4%. Luton is the only London-area airport which could not cater for the total number of London City's passengers by itself. Of course, passengers would not divert to one single airport and spreading London City's passengers across all the airports would contribute a marginal addition to each one.

	Current passenger numbers (in millions)	Terminal capacity, passenger numbers	Number of additional passengers within limit	Per cent addition to passenger numbers	Per cent addition from transfer of all London City
		(in millions)	(in millions)	within limit	passengers
Heathrow	72	90	18	25%	4%
Gatwick	35	40	5	14%	9%
Stansted	18	35	17	94%	17%
Luton	10	12	2	20%	30%

#### Table 2: Catering for London City Airport passengers at other London airports

**Source:** Civil Aviation UK Airport Statistics 2013–10; and Airports Commission Interim Report Appendix 3: Technical Appendix, table 4.3. Note: Current terminal capacity passenger numbers refer to 2011



#### Figure 5: Schematic Image of London airports

#### b. London City destinations are largely served by the other airports

There is a strong concentration of demand for a few of the destinations served by London City. All of the top ten are also served by Heathrow and, with the exception of Frankfurt and Rotterdam, by at least one other Londonarea airport as well. Heathrow alone could serve over 80% of London City's passengers by destination.

Only 11 of London City's destinations are not serviced by any other local airport. These are: Antwerp, Dundee, Berne, Deauville, Avignon, Angers, Brest, Dresden, Munster, Paderborn and Quimper. Most are minor destinations in Europe, serving relatively few passengers but still accessible via other close destinations and mature existing train links.

*c. Flights could accommodate additional passengers within current capacity* Following point a) above, even if there is space to handle passengers at other

Following point a) above, even if there is space to handle passengers at other airports, is there seating capacity on flights to the right places? In this context it is worth noting that flights to and from London City Airport are far from full – 61% are occupied on average which could increase the possibility of catering for these passengers at other airports.<sup>97</sup> Understanding how much space there is on flights from other airports to accommodate a straightforward transfer depends on seat occupation by time of day/year and destination. Data to permit this analysis held by airlines is not currently available. But in any case, increasing the size of aircraft to accommodate more passengers per flight is already part of an ongoing trend in the industry and more is set to be made of this going forward.<sup>98, 99</sup> In addition, across London airports there is runway

space for some additional flights while allowing for an overall net reduction if London City were to close.

#### d. Surface access is improving travel to other airports

Crossrail will be a game-changer for accessing other London-area airports from central London. Crossrail's journey time calculator shows 32 minutes of travel time between the City of London (Liverpool Street) and Heathrow, only 4 minutes longer than the public transport journey time between Liverpool Street and London City Airport, and 10 minutes longer than by private car. The journey time between Canary Wharf and Heathrow will be longer, at 40 minutes with Crossrail, than the 19–25 minutes by public transport from Canary Wharf to London City Airport or 12 minutes by private car.<sup>100</sup>

Airport operators and business groups have highlighted improvements to surface transport access as being key to deploying existing spare capacity at other London airports.<sup>101</sup> Relatively low-cost rail enhancements, some of which are already planned, have been flagged for improving connections to Gatwick, Stansted and Luton. Other innovations in ticketing and passenger information could also help significantly in changing perceptions of travelling to different airports.<sup>102</sup>

### e. Future demand requires management

The latest forecast of demand for air travel in the UK was produced by the Airports Commission in December 2013. It shows that, if capacity was available and carbon costs were determined by the market rather than an imposed cap, demand would more than double from its 2011 level of 217 million passengers.<sup>103</sup> Whatever the putative forecast of 'unconstrained' demand, there are two important considerations: first, forecasts have been coming down over successive iterations which calls for caution in thinking about any expansion to aviation capacity; the second, bigger point is that there is no question that air travel has to be managed down because of the commitment to society-wide carbon cuts enshrined in the Climate Change Act 2008. Both these factors suggest a strong case for rationalisation of airport capacity and use.

There is a thorny question for government and society to resolve about how the burden of overall emissions reduction is to be shared between sectors of the economy. It will be easier to cut emissions in some sectors than others, so an equal burden of cuts is unlikely, but under current Climate Change Act provisions, aircraft could account for 24% of the UK's entire carbon emissions budget by 2050. This is dramatically more than its share of emissions today at about 6%. If aviation takes up a much bigger share of a smaller economywide emissions budget then it implies deeper cuts in other arguably more important areas such as surface transport or housing.<sup>104</sup> As the Committee on Climate Change noted in its letter to the Airports Commission:

"The fact that aviation emissions are in the 2050 target implies a trade off between emissions in this and other sectors of the economy: the higher the level of aviation emissions, the deeper the emissions cuts required in other sectors to meet the economy-wide target ... Reducing emissions in other sectors by 85% in 2050 on 1990 levels is at the limit of what is feasible, with limited confidence about the scope for going beyond this."<sup>105</sup>

#### Local impacts and the case for closure

Having discussed the feasibility of replacing London City Airport by catering for its traffic through other airports, this section explores reasons why closing the airport is a serious proposition.

In this section we consider the impacts created by London City and where the benefits and disadvantages fall across society. We discuss how diverting London City's traffic can improve economic benefits to the national and local economies while mitigating negative local impacts and raising the possibility of better quality of life.

It is important to note the need to be sensitive to displacing the social and environmental impacts of London City Airport to communities around the other London-area airports. This is why it is essential to consider accommodating City Airport's passengers predominantly via existing flights to and from the other airports, including via the use of bigger aircraft. Overall the proposition here is built on the notion of a net reduction in negative aviation impacts in the London-area compared to business as usual.

#### a. The contribution of London City Airport to the economy

Establishing the economic contribution of aviation in general, and one airport in particular, is not as straightforward as the industry might claim.<sup>106</sup> The relationship between air travel and GDP, for example, has been noted as "intrinsically difficult and quantification raises formidable challenges."<sup>107</sup>

In the case of London City Airport, data suggests that it contributes less in economic terms than other comparative developments. The airport estimates that it contributes £750 million per year to the UK economy, which is mostly the indirect contribution from onward spending by inbound passengers (and which would be retained if these passengers came into alternative London airports). Only £110 million is the direct contribution from London City Airport operations and businesses on-site.<sup>108</sup> By comparison, the nearby ExCeL London Exhibition and Convention Centre, which has a similar footprint, contributes almost double the total economic contribution of London City Airport, at £1.3 billion in 2012. In 2011, with a net contribution to the London economy of £813 million, the ExCeL's direct impact was estimated at £513 million.<sup>109</sup>

### b. Jobs

One of the main economic benefits of interest relates to jobs provided by the airport, particularly those occupied by local people. Data reveals that the airport underperforms in respect of job creation, a finding consistent with experience at other airports.<sup>110</sup>

In 2012, employers on-site at London City Airport employed a total of 2,055 people directly (full-time and part-time employees) through 1,900 full-time equivalent jobs.<sup>111</sup> The largest employer was the airport itself, accounting for 577 employees. In addition to the direct jobs recorded, an additional 570 indirect and induced jobs are recorded as a result of the airport. But the airport has not lived up to its jobs promises. For example, despite claims that additional jobs would be created following planning approval for expansion in 2009, the number of jobs has actually fallen since then – London City Airport data records 2,098 jobs in 2009 compared with 2,055 jobs in 2012.<sup>112</sup>

A previous agreement between London City Airport and the local authority set a benchmark for the airport to ensure that 70% of jobs at the airport were filled by residents of the local vicinity (comprising 11 east London boroughs of Newham, Tower Hamlets, Greenwich, Bexley, Lewisham, Southwark, Barking and Dagenham, Havering, Redbridge, Waltham Forest and Hackney, as well as Epping Forest District Council<sup>113</sup>), with at least 35% filled by Newham residents. From 2009 this requirement was somewhat weakened so that the airport needed to show that it had made reasonable efforts to achieve local employment ratios. Latest data shows that only 61% of on-site employees at the airport live locally, and only 27% live in Newham.<sup>114</sup>

The overall jobs figures presented by the airport authorities appear to be somewhat problematic. In interviews conducted for this research we heard that the figure of more than 2,000 jobs is likely to be inflated because it actually refers to the number of security passes issued for the airport. These could include staff from the owning companies who are not exactly employees. It has also been suggested that a number of the jobs recorded at the airport are registered and paid for in Euros in Ireland which incurs a double counting effect.<sup>115</sup>

The airport incurs a significant opportunity cost in terms of jobs. The allocated safety crash-zone renders land close to the airport unproductive.<sup>116</sup> The airport authorities estimated in 2009 that the associated opportunity cost in terms of employment was 338 jobs.<sup>117</sup> Currently in its City Airport Development Programme Environmental Statement it estimates that a further 160 to 300 potential jobs will be lost, depending on whether its development plans go ahead or not.<sup>118</sup> The safeguarding zone which extends to a 3 mile radius impacts on not just Newham but Tower Hamlets, Greenwich and the City of London itself by restricting the height of buildings, either for business or residential purposes, affecting jobs as well as housing.<sup>119</sup>

In its 2009 planning application, which received approval for an increase in permitted air transport movements from 80,000 to 120,000 per year, London City Airport estimated that it would create an additional 1,000 jobs through airport activities. These did not materialise. More recently, in its City Airport Development Programme Planning Statement, submitted to Newham Council in July 2013, and currently under consultation, the airport authorities forecast that plans to extend the airport infrastructure have the potential to create an additional 1,500 local jobs, including those from the proposed hotel. In more detailed analysis in Chapter 7 of the City Airport Development Programme Environmental Statement, the increase in full-time equivalent employment by 2023 with approval for the Development Programme is estimated at only 700 additional jobs on-site at the airport and 210 indirect and induced.<sup>120</sup> While job estimates for the ExCeL centre refer to jobs across the UK, not just local jobs, they demonstrate a different scale of opportunity in that direct jobs are expected to increase by 166% up to 2017 to a total of 53,000 across the UK.<sup>121</sup> Other local jobs, up to 9,000, are expected to result from the Silvertown Quays development, again substantially in excess of what the airport is expected to offer.<sup>122</sup>

#### c. Businesses and regeneration

As noted earlier in this report, the area around the airport has been designated as a Green Enterprise Zone. Part of London City Airport's proposition is that it is a key factor in attracting inward investment to the Docklands and wider east London area, encouraging businesses, investors and developers to locate in east London, bringing new services and facilities to the area.<sup>123</sup> The evidence presented, however, focuses on the extent to which the airport may have merely helped add value to the City of London and Canary Wharf, rather than the local area. This serves to highlight that, to a large extent, the airport provides a corridor for people to simply travel through the local vicinity.

It has been estimated that the direct financial impact of the airport on the local economies, together with indirect and induced influence via supply chains and multiplier effects amounts to a total contribution of some £100 million per year.<sup>124</sup> We can look to the plans for development at Silvertown to compare. This is expected to create a new thriving waterside destination for Londoners and visitors to live, work and enjoy. It aims to provide innovative design, high technology and green enterprise, and will also contain space for incubator and technology businesses well as more than 1,500 new homes, restaurants, cafes, galleries and leisure facilities. It is forecast to contribute £260 million each year of gross value to the London economy.<sup>125</sup>

London City Airport's Community Review<sup>126</sup> sets out its approach to community relations through its Corporate Social Responsibility provision. The document highlights the airport's work on consultation and communication with local communities and describes a number of community-based programmes and support schemes which include work experience and training programmes, an Education Excellence Programme for primary, secondary and further education students, and support for local health and well-being schemes, for example the Community Food Enterprise.

#### d. Fiscal contributions

London City Airport reports that, in 2012, it contributed £197,158 to the London Borough of Newham for local initiatives, comprising an annual monitoring payment, an education and training contribution and a parking contribution.<sup>127</sup> The previous year, London City Airport contributed £968,404.<sup>128</sup> The bulk of this, £647,740, was designated for community programmes. These payments are in fulfilment of the airport's obligations under its section 106 agreement with the London Borough of Newham.

It has been noted that, in terms of net payments and receipts, the Metropolitan Police policing costs at London City Airport were projected to be £4 million for the financial year 2012/13 but that the contribution of the airport towards covering these costs was expected to be half the total, at £1.9 million.<sup>129</sup>

#### e. Noise impacts

"Noise is not just annoyance. It damages health, it detracts significantly from the quality of life, it stops local residents enjoying their gardens or simply enjoying peace and quiet, it damages wildlife, it damages the learning ability of schoolchildren and it costs a great deal of money through the costs of noise mitigation and noise abatement."<sup>130</sup> Official UK government guidance is to recognise the onset of significant annoyance from 57dB of noise.<sup>131</sup> The World Health Organisation (WHO), however, recommends the lower noise level of between 50 and 55dB for the onset of significant annoyance.<sup>132</sup> According to the City Airport Development Programme, in 2012 a population of 17,900 people within 8,300 dwellings near the airport were significantly disturbed by noise at 57 dB.<sup>133, 134</sup> Not including any building of permitted new homes, by 2021, if the airport gets planning permission for proposed development, the number of people affected by noise at this level is expected to almost double to 34,000 within 15,000 dwellings. However, the number of people affected to the level of 63 dB is expected to almost triple from 1,000 people in 2012 to 2,800 by 2021. Once buildings scheduled and with permission to be built are included, by 2021, 75,900 local people will experience noise at 57 dB, with 17,500 people living with worse noise at 63 dB.

In the Royal Docks area, every local school falls within the 57 dB contour. In the wider local area, nine out of the 31 schools are within the 57 dB contour, and this is expected to increase to 11 schools by 2021 if the airport develops as proposed.<sup>135</sup> Parks are also badly affected. With expansion of the airport, six out of the eight local outdoor spaces will be within the 57 dB contour by 2021, exceeding the WHO's guidelines, which will surely limit how much people will enjoy and use outdoor facilities.<sup>136</sup> Planting trees, part of the Mayor of London's vision to improve the amenity of green spaces, is not possible around London City Airport because of the fact that trees attract birds and increase the risk of bird-strike affecting aircraft. Noise has further negative implications for wildlife in the area.

#### f. Air pollution

Air pollution in London has been described as "an absolute crisis".<sup>137</sup> Improving air quality is a priority for the London Mayor and is one of the six objectives set out in the London Plan.<sup>138</sup>

Newham faces typical challenges from very poor air quality. Death rates in the borough from chronic obstructive pulmonary disease and asthma – diseases which are exacerbated by air pollution – are among the highest in London.<sup>139</sup> Research has shown that air pollution affects deprived communities more deeply. In part this is due to the location of deprived communities and often the lack of green space. But in addition, people in deprived communities have been found to suffer more ill-health than better-off peers at the same levels of exposure.<sup>140</sup>

Aircraft emissions around airports are well-known to contribute to poor air quality as noted by the Civil Aviation Authority: "The impact of the aviation industry on local air quality, especially in the vicinity of airports, has long been recognised." Despite this, London City Airport's air quality monitoring data shows it is within EU regulated limits. However, serious concerns have been expressed about air quality monitoring. In the first place, monitoring requirements have been reduced to ambient rather than specific monitoring over the past decade. Secondly, current monitoring is believed to under-report air pollution by, for example, removing monitors from key sites, and taking readings on top of buildings rather than at ground level where the evidence suggests effects are worst.

#### g. Community severance

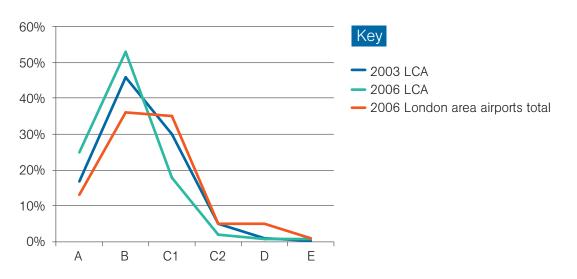
Communities such as North Woolwich, which exists in the shadow of a commercial airport, suffer from loss of space and productive land, as described in the jobs section above, and from limits to easy access to surrounding neighbourhoods. In the case of London City Airport, the geography is such that the community is hemmed in by water both north and south. However, access could be better bridged and the amenity of the land opened up with an alternative use of the airport space.

We heard from local residents that the area can feel like an island – disconnected from surrounding neighbourhoods. Transport links are primarily focused on access to the airport, not access for local residents to shops, schools, or leisure facilities. The development of Crossrail was said to have impacted on local traffic flows, and an important local bus service had been discontinued, reflecting a sense in which local access is not prioritised.

#### **Distributional considerations**

Examination of London City Airport's business and its surroundings lifts the lid on important issues of inequality. At root, those who benefit from access to air travel are very often not those who bear the costs of living close to an airport and major flightpaths. This is particularly stark in the case of London City Airport.

It is not surprising, since London City is predominantly a business airport, that its clientele are some of the most affluent in the country. Almost half (41%) hold positions of chairman, managing director or other senior manager. The average salary earned by a London City Airport passenger is £92,000.<sup>141</sup> This stands in stark contrast to the fact that residents of Newham have the lowest average annual incomes in London with 40% earning below £20,000 and 50% earning below the Newham average of £25,000.<sup>142</sup> In addition, every ward in Newham has a higher rate of out-of-work benefit claimants than the London average, with North Woolwich one of the wards with the highest concentration.<sup>143</sup>



# Figure 6: Socio-economic profile of passengers at London City Airport and London area airports

**Source:** www.lcacc.org/statistics/#ATMS

Figure 6 shows that London City Airport's passenger profile is heavily skewed to the top socioeconomic groupings, A and B, and on the evidence of comparing 2003 and 2006 data, it looks to have become more skewed over time (comparing blue and green). For London area airports taken as a whole, they are still serving the top half of society but with a greater weight on the upper-middle than the very top.

Figure 6 shows that it is very unlikely that Newham residents will be drawing on the benefits of air travel offered by London City Airport. Instead, these are conferred heavily on some of the richest members of society. But as the preceding section on local economic benefits demonstrates, nor are local Newham residents benefiting in economic and employment terms from the airport (Newham employment rates on-site at London City are 27% compared with 35% as the average resident occupation of jobs in Newham). This suggests the area could do better if the airport site was deployed differently.

#### Passenger benefits

If travel through London City Airport and its private jet centre is enjoyed by a relatively wealthy group, then it follows that the passenger benefits accrue to this group. Passenger benefits are derived under two headings, both related to convenience: proximity and ease of access; and airport experience.

Three-quarters of London City Airport passengers either start or end their journey in Docklands (2 miles away), the City of London (5 miles away) or Westminster (7 miles away). This proximity, together with London's public transport network means access is speedy – mainly via the Docklands Light Railway.<sup>144</sup> Travelling by cab or private car to/from the airport to the business districts of London provides the shortest travel time for any London-area airport – 12 minutes by car from Canary Wharf, and 19 minutes from Liverpool Street.

Meanwhile, the airport experience at London City reflects its small size. London City Airport boasts the shortest check-in time of any London airport – as little as 20 minutes prior to departure.<sup>145</sup> There are also relatively fewer flight delays relative to other airports: 8 minutes on average, compared with 13 minutes at Stansted and 16 minutes at Heathrow.<sup>146</sup>

Estimates by York Aviation calculate £73 million in time savings for passengers each year, approximately half from travel time savings to and from the airport, and half from boarding time savings.<sup>147</sup> As previously described, a sizeable portion of the current additional time that it takes to travel to Heathrow will be eliminated with Crossrail. But the issue of time savings in economic analysis is contentious from a distributional perspective where travel time savings are based on an income-derived cost of time. London City Airport serves wealthy customers whose average income is £92,000. Evaluating time savings to them on the basis of their income will drive up the value of the benefit. Clearly a valuation method using incomes for different groups will always place a higher value on outcomes for wealthier individuals, and therefore tip the balance of decision-making in their favour. The danger is that allocation of resources will then be sub-optimal for overall welfare gains across society and environmental outcomes.

#### Quality of life impacts

The passenger benefits described above suggest that there may be quality-oflife gains in the form of convenience for a wealthy minority. But, for those living around the airport, there are significant quality-of-life losses. As discussed in this chapter of the report, noise, air pollution, loss of amenity in the form of quiet outdoor spaces, and the opportunity cost to economic potential from the public safety zone carry high costs. These costs and the unequal burden of them imposed on local communities is not suggestive of a civilised city. Civilising cities is an exciting ambition which we propose requires bold thinking about different forms of land use.

#### London City Airport in an unequal London

As discussed in Chapter 2 of this report, inequality in cities raises the risk of social and economic instability and also undermines prospects for cities to evolve sustainably. Policy choices, city features and developments which serve to exacerbate inequality lock us into unequal patterns which may be hard to reverse, especially when they are long-lasting as is often the case with infrastructure developments such as London City Airport. It is important to remember though that closing airports is nothing new. We can refer back to the closure of Hendon and Croydon aerodromes as well as Tempelhof in Berlin as past precedents.

## **Conclusion and recommendations**

"When it was established, London City Airport was both promoted and resisted as an icon of the resurgence of financial capital, replacing centuries of traffic in physical goods along the Thames. Now the same space can provide a sustainable, collaborative and community-focused future where capital accumulation is not the measure of happiness and success."

David Janner-Klausner, urbanist and co-founder of Commonplace

We know we have to redesign our cities; it is not overstating the case that this is not a matter of preference but of survival. Environmental imperatives and the instability created by deeply unequal societies will have to be urgently addressed and this is acknowledged worldwide. We have the technologies, imagination, and committed individuals and communities to enable cities to evolve in a sustainable way. What we need to add in is the political will and bold decision-making that will allow it to happen.

This research is a starting point for thinking about important questions that our cities need to address for their own evolution. In a carbon-constrained future, we need to plan transport and travel differently, for example, and understand the implications for providing essentials at a local level while also connecting effectively to the bigger scale and wider world. We need to think about how flexibility can be in-built in our physical environment and also in our own skills and roles but without accepting situations that leave people and places insecure. This means, for example, embracing lifelong learning but also decent standards of social support and an environment that can strengthen relationships. And we need to think about how decision-making and the fruits of prosperity need to be democratised so that participation can truly play its part in sharing knowledge and resources and maximising well-being.

This report sets out to inspire support for decisively acting now on a different model of regeneration and economic activity for our neighbourhoods and cities. We have demonstrated the potential for introducing a different type of approach in an iconic space in east London.

Closing London City Airport is both feasible and desirable. And whatever the claims about the importance of the airport for the finance districts of the City and Canary Wharf, the reality is that closure could happen anyway, and purely for commercial reasons. In conversations for this research we heard that the airport owners are making no secret of their plans to sell. Their interest will be in securing the best price and highest return on their investment and there is no certainty that this will come from another airport operator. Back in 1983, the People's Plan discussed the purchase of the site for the people and we return to this ideal – the land needs to be dedicated back to the public purpose.

Our intention is that the visual impression of the redeveloped London City Airport site accompanying the report encapsulates the possibilities and will be a springboard for exciting conversations and imaginative thoughts to spark a multitude of ideas. What matters is that the ideas can become reality.

#### **Recommendations**

To take forward the work laid out in this report, there are four recommendations for practical steps which would start to turn the vision into reality:

- London's Mayor, in consultation with the national government, to look seriously at closure of London City Airport at the earliest opportunity within a context for south-east aviation that does not expand airport capacity further.
- 2. The GLA and the London Borough of Newham to work towards an investment solution to deliver the London City Airport site into a community land trust model of ownership.
- **3.** Local authority and community residents and business representatives to draw up a strategy to successfully access investment to deliver a sustainable neighbourhood on the site.
- **4.** Partners in policy-making institutions and the community to draw up a framework to ensure community-level engagement in detailed planning of the London City Airport site and for that planning to be put into action.

### **Endnotes**

- The London City Airport site is expected to increase in size from 48.5 hectares to 60.6 hectares if permission is granted for the City Airport Development Programme, currently under consideration by the London Borough of Newham. See Haughton, A. (2013) *Final airport briefing document*. Retrieved from http://www.scribd.com/ doc/178919441/FinalAirportBriefingDocument-pdf
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This research was made possible by the generous support of the Poldham Puckham Charitable Foundation and Lush Cosmetics



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Thanks to: The members of the North Woolwich community who took part in discussions for this research. Thanks also to Alan Haughton, Tim Johnson, Tamsin Omond and John Stewart for their help.

We would also like to thank all those who shared their insights and experience on future cities and developing sustainable neighbourhoods, including Dr Paul Chamberlain, David Chambers, Pat Conaty, Ashley Dobbs, Professor Danny Dorling, Professor David Gibbs, Tony Greenham, David Janner-Klausner, Ed Mayo, Penny Shepherd, Ian Short and Savvas Verdis. However, responsibility for the analysis and recommendations presented in this report rests solely with the authors.

Edited by: www.soapbox.co.uk **Designed by:** www.soapbox.co.uk Cover image by: erg0 via Flickr

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Registered charity number 1055254 © April 2014 New Economics Foundation

ISBN 978-1-908506-59-7



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